

REMARKS

The following remarks are responsive to the Office Action dated May 15, 2006. Claim 1-23 were rejected.

The pending claims are Claims 24-41.

Claim 1-23 are cancelled.

Claims 24 – 41 are new and reflect the amendments to claims corresponding to the election under the restriction requirement as well as other amendments to put the application in condition for allowance.

A Notice of Allowance is respectfully requested.

Amendments to the Specification

Paragraph [0027] has been amended to correct obvious typographical errors in the application as filed. The deletions are shown below via ~~striketrough~~ and the additions via underline for ease of reading. It is respectfully submitted that no new matter is introduced by these amendments. It is also respectfully requested that the corrections be entered as they better put the application in condition for allowance.

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The ~~usually-~~ additives can be used including “extreme pressure” an antiwear, oxidation inhibitors, ~~and-~~ thermal stability improvers, corrosion inhibitors, viscosity index improvers, pour point depressants, detergents, antifoaming agents and viscosity adjusters. Examples of suitable additives are included in Table D n U.S. Pat. No. 4,755,316, the disclosure of which is incorporated herein in its entirety.

Claims 24-41 are Fully Supported by the Specification

Support in the pending specification for new Claims 24 - 27, 30, and 38-41 is provided at least at paragraphs [0019], [0020], and [0023] to [0025]; support for Claims 28 and 29 can be found in at least paragraph [0021]; and support for Claims 31 - 33 is found at least at paragraphs [0026] and [0027]. Claims 34 and 37 correspond to the subject matter of original Claims 22 and 23, but now ultimately depend on new Claims 24 or 30 and are supported by the specification at least at paragraph [0012].

It should be noted that the term oxidation “inhibitor” (as used in proposed Claim 30 and 33) is not explicitly stated in the specification, but the “inhibitor” attribute is inherent and implicit within the entirety of the specification of the pending patent

application in view of the field of the invention, and the general skill (even lower than one of ordinary skill of the field of the invention), and in view of the commonly well known unfavorable effects caused by oxidation of organic materials, including refrigerants. It is respectfully submitted that the failure to recite the phrase “oxidation inhibitor” *pre se* is a typographical error in the specification (corrected herein via amendments as shown above) and one whose error is obvious and for which the correction is equally obvious.

Claims 34 -37 are directed to producing refrigeration and a refrigeration apparatus depend from new Claims 24 or 30, respectively.

It is respectfully submitted that no new matter is introduced by the proposed amendments.

Each aspect of the outstanding Office Action is addressed separately below.

Double Patenting Rejections

Originally pending Claims 1-23 were rejected on the grounds of the nonstatutory obviousness-type double patenting in view of Claims 1-24 of U.S. Patent No. 6,655,160 (the ‘160 patent) and, similarly, originally pending Claims 1-18 and 20 - 23 over Claims 1-9 of U.S. Patent 6,428,720 (the ‘720 patent).

It is respectfully submitted that the above amendments remove the basis for these two double patenting rejections. In particular, pending Claims 24 and 30 and now recite “Pentafluoroethane in an amount of from 62% to 67% by weight . . .”; “1,1,1,2-tetrafluoroethane in an amount of from 26% to 36% by weight . . .” and “n-butane, isobutane, or a mixture thereof in an amount from 3% to 4% by weight . . .”. The now claimed composition is neither the same as nor obvious in view of Claims 1-24 of the ‘160 patent or Claims 1-9 of the ‘720 patent.

Moreover, because of the unpredictable nature of refrigerant blends, the disclosures of the ‘160 and ‘720 patents do not teach or suggest the invention as now proposed in pending Claims 24 – 41.

Priority Date

Applicants does not disagree with the Examiner's conclusion about the priority date afforded to the above pending claims. Applicants respectfully submits that Applicants should not be required to file a terminal disclaimer disclaiming any patent term with respect to the now pending claims in view of either of the '160 or '720 patents.

35 U.S.C. § 112, First Paragraph

Claims 1-3 and 6-23 were rejected as being non-enabling for any and all hydrocarbons and any oxygen containing materials. While Applicant does not agree with the Examiner's statements, the pending claims are now directed to compositions having isobutane. Thus, it is respectfully submitted that pending Claims 24-41 are no longer objectionable.

35 U.S.C. § 102(b)

Claims 1-5, 8, 10-15, 22, and 23 were rejected as being anticipated by the 1998 International Refrigeration Conference at Purdue ("Purdue"). It is respectfully submitted that in view of the above amendments to the claims, this rejection should be withdrawn. The invention as now claimed is neither taught nor suggestion by the Purdue reference.

35 U.S.C. § 103(a)

Claims 1-20, 22, and 23 were rejected as having been obvious in view of WO 96/034,473 ('473). The now-claimed invention is neither taught nor suggested by the '473 reference. Specifically, in the now pending claims there can be no more than 5% of another fluorocarbon, which is vastly different from the '473 reference suggesting the use of 10-30% difluoromethane. In the field of refrigerants, small difference in compositions matter in performance and the balancing of many performance factors. See specification paragraphs [0046] to [0056] and the tables and charts referred to therein.

In particular, the invention as now claimed in Claim 24 and 30 are highly compatible with mineral oil. See, e.g., paragraph [0026] discussing reduction in mineral oil viscosity achieved by use of the invention of the pending claims when a mineral oil lubricant is used. That is, the lower oil viscosity permits the transport of oil throughout the refrigeration system and back to the compressor where the oil provides needed lubrication. This is achieved while maintaining good performance as a refrigerant.

In contrast, the '473 reference teaches the use of 10 - 30% of fluorohydrocarbons, such as difluoromethane (aka, R32) with propane and pentane to match the performance of R32. Such a teaching of the '473 reference is in fact a teaching away from the invention of the pending claims, which now recites "wherein the composition contains no more than 5% of another fluorocarbon component". And, for the composition of the '473 reference, with its addition of R32 (which is flammable), the amount of hydrocarbon used must be decreased so that the '473 compositions with all 4 components remains nonflammable, and therefore the benefits for oil solubility and viscosity reduction are also reduced.

Thus, the invention of the pending claims is able to match the performance of replacing R22 as a refrigerant with none and up to no more than 5% of another fluorohydrocarbon and gain the benefits of improved mineral oil viscosity, good refrigerant performance and are considered to be non-flammable compositions.

Consequently, in view of the above amendments and remarks, it is submitted that the invention as now claimed is neither taught nor suggested by the '473 reference when read alone or in combination with the Purdue reference, or any other reference. It is respectfully requested that the above amendment be withdrawn and the pending claims determined to be allowable.

CONCLUSION

In view of the foregoing amendments and remarks, it is submitted that the application is now in condition for allowance. A Notice of Allowance for pending Claims 24-41 is earnestly solicited.

Respectfully Submitted,



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